

The Political Economy of Workers' Compensation: Lessons For Product Liability

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Tort awards for product-related injuries have risen rapidly in recent years. This trend reflects the outcome of court-made decisions, tempered only recently by modest statutory constraints. The workers' compensation (WC) system, under which employers are strictly liable for work-related injuries, is governed entirely by statute at the state level. It provides much lower benefits than does the tort system. There is little presumption that statutory choices for product liability reflect a social optimum, since voters in each state bear a larger share of the costs than the benefits of limiting consumers' rights against product manufacturers, many of whom are located out of state. By contrast, given the standard assumption that the costs and benefits of WC are borne by workers through compensating wage differentials, the WC system provides evidence on collective choices for compensation when costs and benefits of the political choices are internalized within the decision-making jurisdiction. This paper analyzes the political economy of the WC system. The purpose is to investigate whose preferences are reflected in the choice of the WC benefit structure and what lessons can be learned for the optimal design of compensation for product-related injuries and other injuries currently compensated through the tort system.

One caveat is in order. The formal analysis of this paper views WC benefits as designed to provide compensation, thereby ignoring their effect on incentives for care by employers and employees. Ignoring deter-

rence is appropriate only if employee moral hazard is negligible and if compensating wage demands for job risk provide employers with optimal incentives for safety. To the extent deterrence concerns are different in product liability, and if the single tort award must serve the dual function of deterrence and compensation, normative inferences from WC to product liability are tentative.

Previous analyses of WC have tended to conclude that WC benefits provide suboptimal compensation. The policy-oriented literature has long argued that WC benefits are inadequate (for example, *The Report of the National Commission...*, 1972). In a recent study, W. Kip Viscusi and Michael Moore conclude that

the observed rate at which workers are willing to trade off base wage rates for higher levels of compensation greatly exceeds the actuarial rate of trade-off, even taking into account the administrative costs. These results suggest that benefit levels in 1976 were suboptimal, provided that one abstracts from moral hazard considerations.

[1987, p. 260]

Certain features of WC benefits seem inconsistent with basic principles of optimal insurance. Payment is more generous for routine minor injuries than for permanent total disabilities. Some states still limit the duration or the total amount of benefits for permanent disabilities. For temporary and permanent total disabilities, the typical wage replacement rate of two-thirds provides roughly full replacement of after-tax wages (ignoring noncash fringe benefits). But the maximum weekly benefit implies a sharply declining replacement rate at higher wage levels. The mean maximum benefit was .43 of the state average weekly wage in 1965; the mean rose to .81 in 1985, with a range of .36 to 2.32 (see my 1987 paper).

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A finding that WC benefit levels are suboptimal (i.e., below the level that workers would be willing to pay for) would be surprising since it would imply failure to maximize utility of workers and to minimize costs for employers. However the conclusion that WC benefits are suboptimal ignores important differences between WC benefits and the model of the individual demand for compensation that underlies the inference of suboptimality. First, the WC benefit structure, like any social insurance program, is a public good for all individuals covered. With heterogeneity of worker preferences, the common benefit structure is unlikely to be simultaneously optimal for all workers. This raises both the positive question of how the common benefit structure is determined and the normative question of the optimal level of such benefits.

Second, the WC system is only one among several possible sources of insurance for wage loss and medical expense. The choice of state-level public coverages such as WC should be viewed as simultaneously determined with private health and disability insurance, taking as given the structure of federal programs such as SSDI and medicare. The optimal structure of mandated public programs depends on the functioning of markets for private insurance. If private coverages were available at comparable cost to WC, since private coverages can be matched more closely to individual preferences, it would be irrational for a state to incur the deadweight cost of mandating uniform WC benefits. However, if private insurance markets are subject to adverse selection, myopia or free riding, mandatory coverages may be Pareto improving.

I. Individual Choice of Benefits

Consider first the case where insurance is a pure private good. In each period the worker faces an exogenous probability of injury p . If no injury occurs he receives a wage W ; if an injury occurs he receives wage replacement benefits K . A cost-minimizing employer would select the cash wage W and benefits K to maximize the employee's utility, subject to the constraint that the ex-

pected cost of the compensation package is equal to the potential wage with zero benefits W^e , which is also the value of marginal product under profit maximization. The utility-maximizing level of benefits satisfies

$$(1) \quad U_0 = U_1(1-t)(1+h),$$

where t is the worker's marginal tax rate; $h \geq 0$ is the administrative cost per dollar of expected benefits (the load on the employer's insurance); and subscripts 0 and 1 denote the states of injury and no injury, respectively.¹ The individual's preferred replacement rate ($k = K/W$) can be written

$$(2) \quad k^* = k(W^e, t, p, h).$$

Comparative statics analysis indicates that $k_h^* < 0$. With state independent utility and decreasing absolute risk aversion, $k_{W^e}^* < 0$ and $k_p^* < 0$ if taxes are proportional. With progressive taxes ($dt/dW^e > 0$), k_t^* would be positive; indeed, if $(1-t)(1+h) < 1$, then k^* would exceed unity. But if there is moral hazard with respect to either the occurrence of injuries or the duration of claims, this would impose the additional constraint $K \leq W_{(1-t)}$; with progressive tax rates this implies $k_t^* < 0$ and $k_{W^e}^* < 0$.² However, the very sharply declining replacement rate implied by the maximum benefit is not predicted. These results may not hold if utility is state dependent.

II. Collective Choice of Benefits

Since the WC benefit structure is a public good within each state, equation (2) cannot be estimated for individuals. Given the small number of states, the assumption of Tiebout sorting of individuals to achieve homogene-

¹This condition for optimal compensation when wages are taxed is also derived in Viscusi and Moore.

²For derivations, see my earlier paper. Although large firms are self-insured or self-rated, perfect experience rating at the firm level may be insufficient to eliminate moral hazard at the level of the individual worker. R. J. Butler and J. D. Worrall (1983) conclude that there is a positive elasticity of claims with respect to benefit levels.

ity of preferences within states is not plausible. Following T. E. Borcherding and R. T. Deacon (1972) and T. Bergstrom and R. Goodman (1973) the choices of benefit levels across states can provide information about individual preferences under certain assumptions, specifically: 1) each voter chooses the k that maximizes his (or her) utility, given his "tax price" (s) per unit of K ; 2) each voter's tax price s does not vary with the level of K ; 3) in each state, the quantity supplied is the median quantity demanded, which is the quantity demanded by the individual of median income (i.e., there is no vote trading); and 4) income distributions are proportional, as defined by Bergstrom and Goodman (p. 286). Given these assumptions, each observation is an observation on the demand curve of a consumer with median income given his tax price.

The most difficult variable to measure is the tax price (s). For publicly provided services such as education, each voter's tax share is determined by legislation. But, for public goods where the publicness lies in the mandating of a common level of private purchase, each individual's price depends on the prices he faces in private markets. In the short run (with all factors fixed in their current employments), the supply price per unit of K to the i th worker in firm j is simply $s_{ij} = (1 + h_j)p_j/(1 - p_j)$, assuming that firms are perfectly experience rated and each worker pays a fully compensating wage offset. Let k_{ij}^* denote the preferred replacement rate of the i th worker in firm j , given s_{ij} . It is the solution to equation (1) given the short-run supply price.

But, in the long run, the effective supply price of K to any worker depends on the distribution of preferences of other workers, and on general equilibrium adjustments to the mandated level of benefits. Assume that the state arbitrarily mandates a replacement rate \bar{k} such that for workers of type L , $\bar{k} > k_L^*$ and for workers of type H , $\bar{k} < k_H^*$. In the long run, type L workers who would prefer less than the statutory level of benefits ($\bar{k} > k_L^*$) would not be willing to pay a fully compensating wage offset if they could get k_L^* in another state or in the uncovered sector of the economy. Similarly, any type H

worker for whom $\bar{k} < k_H^*$ and who can get k_H^* elsewhere would require additional wage compensation. Thus mandatory benefits impose a tax on workers for whom $\bar{k} \neq k^*$. The tax for the i th worker is equal to the difference between the cost to the employer and the worker's valuation of benefits:

$$(3) \quad T_{ij} = p_j/(1 - p_j) \left[(1 + h_j) - U_0/U_1(1 - t_i) \right] (\bar{k} - k_{ij}^*)$$

assuming within-firm homogeneity. The incidence of the tax depends on general equilibrium adjustments in factor and product markets. For any worker, the long-run supply price of K thus depends his share of the "tax" from mandating nonoptimal benefits for other workers.

For any k , the effective tax T is more likely to be positive in small firms, since the load h is an inverse function of firm size. The magnitude of the tax also depends on the cost of supplementary insurance. Let g denote the load on private insurance. If $g < h$ (perfect private supplementation), then $\bar{k} < k_H^*$ imposes no tax on H . In practice, the per capita tax from $\bar{k} \neq k^*$ is likely to be higher for $\bar{k} > k^*$ than for $\bar{k} < k^*$, with some differences by type of benefit. Sick pay and group long-term disability (LTD) insurance are very good substitutes for WC wage replacement for high-wage workers (at least in large firms). Although most lower-wage workers do not have LTD coverage, SSDI provides replacement rates at least equal to the maximum that private insurers would permit. There is no private coverage comparable to the permanent partial wage loss benefits provided by WC. Private group health insurance is a very good substitute for WC medical benefits for disabilities that leave the worker employable. But, if disability leads to loss of employment with access to group benefits, and if the individual does not qualify for medicare, private nongroup health insurance markets provide poor protection against the risk of becoming high risk. Policies are individually underwritten, preexisting conditions are often surcharged or excluded from coverage, and loading charges are typically between .8 and 1 (with

higher loads for policies that guarantee re-employment) compared to loads of roughly .25 or less for WC medical benefits. Thus the excess cost of suboptimal WC wage replacement is probably negligible. For long-term medical benefits and permanent partial wage loss, there is less presumption of asymmetry in the per capita excess cost from $\bar{k} < k^*$ and $\bar{k} > k^*$.

If $g \leq h$ (perfect private supplementation), there would be unanimous choice of $k = k_1^*$, unless k_1^* is influenced by myopia or an intention to free ride. Even if $g > h$, type H workers may nevertheless vote for k_1^* if g is still less than their effective supply price of WC benefits, including their share of the tax imposed on type L workers by mandating $\bar{k} > k_1^*$. Thus the effective price to H of voting for $\bar{k} > k_1^*$ depends on the magnitude and the incidence of the tax on L , which depends on elasticities of factor supply, product demand and factor substitution. In general, if type L workers are mobile and type H workers are not, type H workers may bear part of any excess tax on L .

The incidence of a tax on one type of labor, where the tax rate differs across states can be analyzed using Peter Mieskowski's (1972) general equilibrium analysis of the incidence of the local property tax on reproducible capital.³ Assume three factors of production: type L workers for whom $k_1^* < \bar{k}$; type H workers for whom $k_h^* > \bar{k}$; and capital F which includes imperfectly mobile factors such as land and small entrepreneurs. All factors are in fixed supply in the aggregate. L is perfectly mobile among states but H and F are imperfectly mobile. If the tax on L is uniform across states, the full incidence is on L . But, if the tax rate differs across states, L in high-tax states will not bear the cost differential in these states since wages of L (W_l) will be equalized in all employments. W_l falls by the average cost of benefits, including the average tax due to nonoptimal benefits. But the incidence of the

deviations from the mean tax (both positive and negative) is on consumers and other immobile factors. Forward shifting may be possible for nontraded goods such as some retail trade, services, and construction. This is more likely if small firms, that face a relatively high tax rate due to higher costs of providing insurance and safety, do not compete in domestic markets with large firms that face lower loads for insurance and economies of scale in producing safety. There may also be backward shifting to imperfectly mobile factors in high-benefit states and, in particular, to immobile factors in high-cost firms in high-benefit states. Of course, if L in high-cost firms is imperfectly mobile, then it will bear (part of) the excess tax.

Thus with heterogeneous preferences and a common benefit structure, the standard assumption of an individually actuarially fair compensating wage differential for WC benefits may be incorrect and the choice of WC benefit levels may be affected. If type H are less mobile than type L workers, type H face an increasing marginal cost per unit of K, h' , where h' is positively related to $(\bar{k} - k_1^*)$, to the elasticity of demand for domestically produced goods and to complementarities in production. If $h' < g$, there would be unanimous choice of k_1^* (ignoring myopia and free riding). This choice would be optimal in the sense that it avoids any deadweight loss from imposing a common level of benefits on individuals with heterogeneous preferences. With $h' > g$ mandatory benefits impose a deadweight loss and there is no presumption that it will be minimized in the aggregate with a median voter model of political choice. However, provided the median voter bears some share of the excess costs imposed on other workers, he would vote for a lower \bar{k} than if \bar{k} were a pure private good.

II. Empirical estimates

Table 1 reports OLS estimates for the log of the maximum weekly benefit (MAX) for temporary total and permanent total disability, for approximately 37 states in 1970, 1975, 1980, and 1985. MAX is a public good for all workers with wages above the threshold

³Paul Courant (1977) shows that the Mieskowski model is only approximately correct, but that suffices to establish the point being made here.

TABLE 1—MAXIMUM WEEKLY CASH BENEFIT (LOG)
(1970, 1975, 1980, 1985)

Variable	Coefficient	t-Statistic
Intercept	4.724	3.52
Wage (LOG)	0.083	0.41
Injury Rate	-0.000	-0.04
POOR ^a	-0.022	-3.15
SMALL ^a	-0.047	-3.38
UNION ^a	0.003	0.60
MANUF ^a	0.004	0.76
AGRIC ^a	0.280	6.38
MINING ^a	0.007	0.36
CONST ^a	0.026	-0.96
SERVICES ^a	0.034	3.56
EDUC > 12	0.007	1.16
D75	0.083	1.30
D80	0.196	2.09
D85	0.153	1.14
R ²	.739	
n = 146		

^aMeasured as percent.

at which *MAX* is a binding constraint on the replacement rate, but for lower-wage workers it should be irrelevant if compensating wage differentials are individually fair and general equilibrium effects are irrelevant. The significant negative coefficient of the percent of low-income families (*POOR*) is consistent with the hypothesis that general equilibrium effects matter. Benefits are negatively related to the percent of workers in establishments of 20 or fewer employees (*SMALL*) which is consistent with a negative price elasticity of demand. The significant positive coefficients of percent of workers in agriculture (*AGRIC*) and services (*SERVICES*) could reflect the higher cost of private supplementation in these industries, as evidenced by the fact that a disproportionately high percentage of workers in these industries lack private insurance. Dummy variables for 1975, 1980, and 1985 are positive, although not highly significant. This suggests either that the threat of federal intervention following the National Commission had an effect or that WC is subject to some of the same influences that have led to rising real tort awards and that these influences are not captured by the explanatory variables included here. The income elasticity (*WAGE*) is insignificantly different from zero. Union-

ization and other measures of industrial mix are also insignificant.

IV. Conclusions

This analysis has several implications for interpreting the choice of WC benefits and drawing inferences for product liability. First, no worker votes for less than the benefits he (or she) is willing to pay for, given the effective supply price, h' . But h' depends not only on the load on his own employer's insurance but also of the difference between his preferences and those of other workers. General equilibrium adjustments in labor and product markets internalize to some extent to each worker the excess costs that his choices impose on other workers. Second, willingness to pay for state-level mandatory benefits also depends on the availability of private supplementary benefits and federally financed public programs. Thus for some workers WC benefits may appear to be sub-optimal; but this is true only ignoring supplementation and ignoring the deadweight costs imposed on other workers from mandating higher benefits.

Both factors—supplementation and deadweight costs from imposing common benefits on heterogeneous individuals—apply equally in the case of insurance for product-related injuries. WC benefits therefore provide a reasonable guide for optimal compensation through the tort system, ignoring deterrence.

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